

Title (en)  
PNEUMOCOCCAL POLYSACCHARIDES AND THEIR USE IN IMMUNOGENIC POLYSACCHARIDE-CARRIER PROTEIN CONJUGATES

Title (de)  
PNEUMOKOKKEN-POLYSACCHARIDE UND DEREN VERWENDUNG IN IMMUNOGENEN POLYSACCHARID-TRÄGERPROTEINKONJUGATEN

Title (fr)  
POLYSACCHARIDES ANTIPNEUMOCOCCIQUES ET LEUR UTILISATION DANS DES CONJUGUÉS IMMUNOGÈNES POLYSACCHARIDE-PROTÉINE PORTEUSE

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Application  
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Abstract (en)  
[origin: WO2019050815A1] The present invention provides capsular polysaccharides from Streptococcus pneumoniae serotypes identified using NMR. The present invention further provides polysaccharide-protein conjugates in which capsular polysaccharides from one or more of these serotypes are conjugated to a carrier protein such as CRM197. Polysaccharide-protein conjugates from one or more of these serotypes may be included in multivalent pneumococcal conjugate vaccines having polysaccharides from multiple additional Streptococcus pneumoniae serotypes.

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Citation (search report)  
• [XP] WO 2017173415 A2 20171005 - LIFFEY BIOTECH LTD [IE], et al  
• [E] EP 3720483 A2 20201014 - MERCK SHARP & DOHME [US]  
• [E] WO 2019050816 A1 20190314 - MERCK SHARP & DOHME [US], et al  
• [E] WO 2019050818 A1 20190314 - MERCK SHARP & DOHME [US], et al  
• [E] WO 2019139692 A2 20190718 - MERCK SHARP & DOHME [US], et al  
• [E] WO 2019050814 A1 20190314 - MERCK SHARP & DOHME [US], et al  
• [E] WO 2019050813 A1 20190314 - MERCK SHARP & DOHME [US], et al  
• [YD] EP 0497524 A2 19920805 - MERCK & CO INC [US]  
• [XY] KAMERLING ET AL: "Pneumococcal Polysaccharides: A Chemical View", STREPTOCOCCUS PNEUMONIAE : MOLECULAR BIOLOGY & MECHANISMS OF DISEASE ; [INTERNATIONAL WORKSHOP ON STREPTOCOCCUS PNEUMONIAE: MOLECULAR BIOLOGY AND MECHANISMS OF DISEASE-UPDATE, HELD FROM SEPTEMBER 23 - 29, 1996, IN OEIRAS, PORTUGAL], MARY ANN LIEBERT., 1 January 2000 (2000-01-01), pages 81 - 114, XP009526062, ISBN: 978-0-913113-85-1  
• [XYI] GENO K. AARON ET AL: "Pneumococcal Capsules and Their Types: Past, Present, and Future", CLINICAL MICROBIOLOGY REVIEW, vol. 28, no. 3, 17 June 2015 (2015-06-17), US, pages 871 - 899, XP055781906, ISSN: 0893-8512, Retrieved from the Internet <URL:https://cmr.asm.org/content/cm/28/3/871.full.pdf> DOI: 10.1128/CMR.00024-15  
• [T] WANG Q. ET AL: "Biochemical Characterization of the CDP-D-Arabinitol Biosynthetic Pathway in Streptococcus pneumoniae 17F", JOURNAL OF BACTERIOLOGY, vol. 194, no. 8, 10 February 2012 (2012-02-10), pages 1868 - 1874, XP055782889, ISSN: 0021-9193, Retrieved from the Internet <URL:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3318453/pdf/zjb1868.pdf> DOI: 10.1128/JB.06487-11  
• [T] MULLOY ED - LEI YU: "High-field NMR as a technique for the determination of polysaccharide structures", vol. 6, no. 3, 1 January 1996 (1996-01-01), pages 241 - 265, XP009526145, ISSN: 0273-2289, Retrieved from the Internet <URL:https://link.springer.com/article/10.1007/BF02761706> DOI: 10.1007/BF02761706  
• [T] ABEYGUNAWARDANA ET AL: "Determination of the chemical structure of complex polysaccharides by heteronuclear NMR spectroscopy", ADVANCES IN BIOPHYSICAL CHEMISTRY, JAI PRESS, GREENWICH, CT, US, vol. 3, 1 January 1993 (1993-01-01), pages 199 - 249, XP009526147, ISSN: 1057-8943  
• See also references of WO 2019050815A1

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